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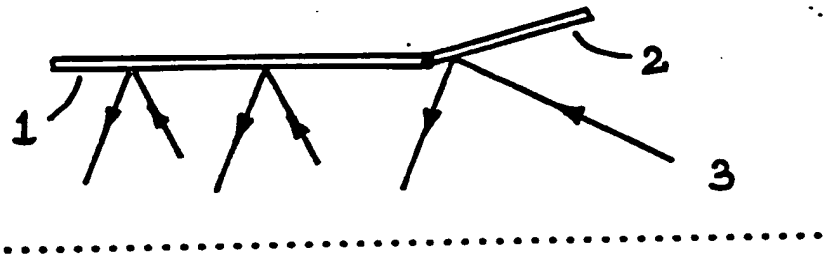
(54) Dual angle rear view mirror

(57) A vehicle wing mirror is formed of two sections of mirror 1 & 2 which, in normal operation, form a single plane. This single plane offers a preferred, undistorted, rearward viewing area for straight line driving. A control signal, preferably derived from the vehicle right hand turn indicators, causes the outer plane to increase the angle of reflection and afford the driver a view of the 'blind spot' not covered in normal operation. Thus, in motorway driving for example, a lane change, normally preceded by selection of indicators, allows vehicles within the blind spot to be detected by the driver prior to moving into the occupied lane.

FIG 1B.



The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1982.

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FIG 1A.

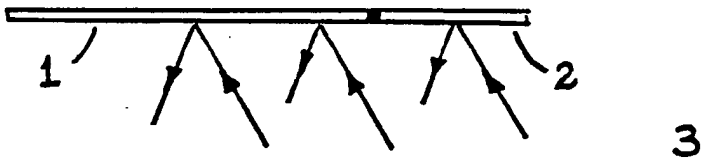


FIG 1B.

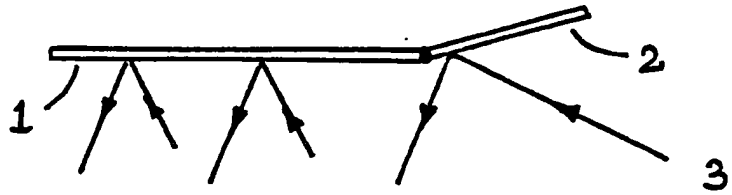
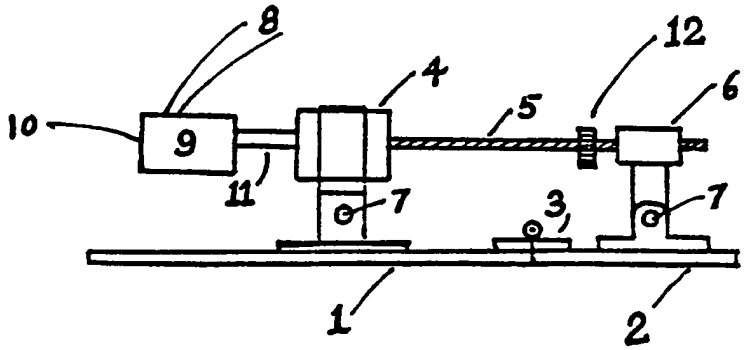


FIG 2.



IMPROVEMENTS IN ROAD VEHICLE REAR VIEW MIRRORS.

Rear view mirrors are required, by law, on all motor vehicles. These include 'wing' mirrors by which the driver may view the areas to the side of the vehicle. Even with the best design of wing mirror a 'blind spot' will exist alongside the vehicle. This may conceal an overtaking car or motorcycle. Some car manufacturers, BMW for example, have attempted to resolve this problem by splitting the mirrored face such that two views, from two directions, are presented to the driver. Essentially, this arrangement uses two mirrored faces, one aligned along the side of the car as normal, the other at an angle which covers the usual blind spot area. Volvo uses a deign whereby the outer section of the mirror is convex, which area takes in the 'blind spot'. Certain disadvantages result from these arrangements. For example, the 'blind spot' area of the mirror, a fair percentage of the total area, is wasted during normal straight-line driving. This is explained by the fact that the 'blind spot' only becomes of interest to the driver when a change of direction is imminent. At other times, the normal, single plane, mirror is the optimum arrangement. A further disadvantage comes when reversing, the distorted images making accurate positioning difficult. A combination of the single plane mirror, and the dual plane mirror offers the advantages of both, whereby the 'blind spot' area may be viewed by the driver only when he intends to occupy that area with his vehicle, such as when actually changing lanes. As a means of switching a combination mirror, from a single plane to a dual plane, the control signal may be the vehicles direction indicators. This arrangement is compatible with normal driver actions prior to a lane change in that the sequence of events allow a logical and automatic change from the single plane mode to the dual plane mode. Consider a driver contemplating a lane change on a motorway. His first action is to view his wing mirror, preferably a single plane, in order to assess following traffic in the lane he intends to occupy. His next action is to select direction indicators to signal his intentions. It is only at this point, immediately prior to the lane change, that the 'blind spot' becomes of interest. Switching the mirror from single plane to double plane, for the duration of the control signal, allows the optimum mirror arrangement to be automatically selected dependant on the intentions of the driver. In urban traffic, again, the blind spot is only of interest immediately prior to a lane change.

A switchable and combined plane mirror offers the following advantages. For normal assessment of following traffic, preferred arrangement of a single plane mirror. For assessment of the 'blind spot' immediately prior to a lane change the preferred arrangement of a dual plane mirror. As an option, to this combined plane mirror, existing electrically controlled mirrors may be modified to change their preset viewing angle, on selection of a control signal, to a position where the blind spot is monitored for the duration of the signal.

Reference is made to the drawings which show the,

Fig 1. Plan views of the mechanical arrangement of the dual mirrored faces in the single plane (A) and dual plane (B) configurations.

Fig 2. The general mechanical arrangement and electrical connections of the dual mirrored faces.

Refering to Fig 1, Diagram A shows the dual mirrored faces, 1 and 2, aligned in their mormal position thus presenting the maximum area single plane to the driver. Arrows show the direction of images presented to the driver. The blind spot 3, is out of view.

Diagram B shows the dual mirrored faces, 1 and 2, aligned in the split configuration thus allowing the driver to monitor the 'blind spot' 3, alongside his vehicle.

Refering to Figure 2. 1 is the fixed face of the mirror with 2 the movable face. A hinge arrangement 3 allows the relative angle between 1 and 2 to be changed. An electrical motor drives screw thread 5 which is mechanically linked to threaded bracket 6 such that operation of the motor will, dependant on direction of rotation, attract or repel 6. Hinges 7 allow relative movement of 4 and 6. Electrical supply is made to the vehicles electrical system via connections 8. 9 forms a switching control and current limiting device such that an electrical signal at 10, for example from the vehicles directional indicators, causes 9 to supply current to the motor via connections 11. This supply causes 4 to attract 6 thus altering the angle of 2 relative to 1. Limit stop 12 serves to determine the maximum movement of 6, and thus 2.

Current limiter 9 determines maximum current drawn thus preventing damage to the motor when limit stop 12 applies. When the electrical signal is removed from 10, for example when indicators are selected to neutral, switching device 9 causes current to 4 to be reversed for a predetermined period. This reversal serves to drive 6 to it's original position, hinge 3 acting, in this case, as the limit stop.

PATENT APPLICATION (8822482-9)

CLAIMS

1. A vehicle external rear view mirror, the mirrored surface consisting of two parts formed such that in the first operational mode, the two parts form a single plane mirror, and in the second operational mode the outer part is moved so as to present two areas of view to the driver.

2. A vehicle rear view mirror as claimed in claim 1, wherein the second operational mode is selectable through an electrical control signal.

3. A vehicle rear view mirror as claimed in claims 1 and 2 wherein the electrical control signal is provided by the direction indicators of the vehicle.

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